dummy wafers and the confusion of the dummy wafers having small numbers of times of use with the dummy wafers having large numbers of times of use. For these reasons, the dummy wafers can be used effectively without any problem when plasma cleaning is carried out.

Furthermore, in accordance with the present invention, the apparatus can have a plurality of processing chambers and can transfer wafers and dummy wafers by the same conveyor. Since plasma cleaning can be carried out by managing the timing of cleaning of each processing chamber by the controller, the cleaning cycle can be set arbitrarily, dry cleaning can be carried out without interrupting the flow of the processing, the processing can be efficiently made and the productivity can be improved.

As described above, according to the present invention, there are effects that the construction of the apparatus is simple, the substrates to be processed are free from contamination and the production yield is high.

What is claimed is:

1. A method of transferring a substrate, using an atmospheric loader comprising:

(1) a single atmospheric transferring device for carrying in and carrying out, one by one, substrates between a cassette which receives plural substrates and two lock chambers;

(2) opening and closing devices, provided at said two lock chambers and being opened and closed every carrying-in said substrate to one of the two lock chambers and very carrying-out said substrate from one of the two lock chambers; and

(3) a cassette table for mounting said cassette at a position of which an upper region thereof is open to a cassette transferring path,

wherein the method comprises the steps of:

using said single atmospheric transferring device, taking out, one by one, said substrate from said cassette which is mounted on said cassette table, at said position, and carrying in, one by one, said substrate to one of said two lock chambers; and

using said single atmospheric transferring device, taking out, one by one, said substrate from one of said two lock [load]chambers, and carrying in said substate to said cassette, wherein said opening and closing devices are opened and closed every carrying-in of said substrate, one by one, to one of the two lock chambers, and every carrying-out of said substrate, one by one, from one of the two lock chambers.

2. A method of transferring a substrate according to claim 1, wherein a substrate which is to be subjected to processing is carried into one of said two lock chambers, and a substrate which has been subjected to processing is carried to said cassette.

3. A method of transferring a substrate according to claim 2, wherein said single atmospheric transferring device is operated substantially at a front face of said two lock chambers.

4. A method of transferring a substrate according to claim 1, wherein said single atmospheric transferring device is operated substantially at a front face of said two lock chambers.

5. A method of transferring a substrate according to claim 4, wherein said two lock chambers comprise a load lock chamber and an unload lock chamber.

6. A method of transferring a substrate according to claim 3, wherein said two lock chambers comprise a load lock chamber and an unload lock chamber.

7. A method of transferring a substrate according to claim 2, wherein said two lock chambers comprise a load lock chamber and an unload lock chamber.

8. A method of transferring a substrate according to claim 1, wherein said two lock chambers comprise a load lock chamber and an unload lock chamber.

9. A substrate transferring apparatus comprising:

an atmospheric loader having

(1) a single atmospheric transferring device for carrying in and carrying out, one by one, substrates between (a) a cassette which receives plural substrates and (b) two lock chambers,

(2) opening and closing devices, provided at said two lock chambers and being opened and closed every carrying-in said substrate to one of the two lock chambers and every carrying-out said substrate from one of the two lock chambers; and

(3) a cassette table for mounting said cassette at a position of which an upper region thereof is open to a cassette transferring path,

wherein said single atmospheric transferring device has a mechanism for carrying a substrate, one by one, to and out from said cassette which is mounted on said cassette table, at said position, and a mechanism for carrying a substrate, one by one, to and out from, said two lock chambers, and

wherein said opening and closing devices have structure causing the opening and closing devices to open and close every carrying-in of a substrate, one by one, to one of the two lock chambers, and every carrying-out of a substrate, one by one, from one of the two lock chambers.

10. A substrate transferring apparatus according to claim 9, wherein the mechanism for carrying the substrate to and out from the two lock chambers carries a substrate which is to be subjected to processing to one of said two lock chambers, and carries a substrate which has been subjected to processing from the other of said two lock chambers.

11. A substrate transferring apparatus according to claim 10, wherein said atmospheric loader is located at a front face of said two lock chambers.

12. A substrate transferring apparatus according to claim 9, wherein said atmospheric loader is located at a front face of said two lock chambers.

13. A substrate transferring apparatus according to claim 12, wherein said two lock chambers comprise a load lock chamber for carrying in said substrate which is to be subjected to processing and an unload lock chamber for carrying out said substrate which has been subjected to processing.

14. A substrate transferring apparatus according to claim 11, wherein said two lock chambers comprise a load lock chamber for carrying in said substrate which is to be subjected to processing and an unload lock chamber for carrying out said substrate which has been subjected to processing.

15. A substrate transferring apparatus according to claim 10, wherein said two lock chambers comprise a load lock chamber for carrying in said substrate which is to be subjected to processing and an unload lock chamber for carrying out said substrate which has been subjected to processing.

16. A substrate transferring apparatus according to claim 9, wherein said two lock chambers comprise a load lock chamber for carrying in said substrate which is to be subjected to processing and an unload lock chamber for carrying out said substrate which has been subjected to processing.

17. A substrate transferring apparatus comprising:

an atmospheric loader having

(1) a single atmospheric transferring device for carrying in and carrying out, one by one, substrates between (a) a cassette which receives plural substrates and (b) two lock chambers,

(2) [a]opening and closing devices, provided respectively at said two lock chambers and being opened and closed every carrying-in said substrate to one of the two lock chambers and every carrying-out said substrate from one of the two lock chambers; and

(3) a cassette table for mounting said cassette, at a position of which an upper region thereof is open to a cassette transferring path,

wherein said single atmospheric transferring device has a mechanism for carrying in and carrying out, one by one, a substrate between said cassette which is mounted on said cassette table, at said position, and [said atmospheric loader, and a mechanism for carrying in and carrying out, one by one, said substrate between said atmospheric loader and said two lock chambers,] a lock chamber of said two lock chambers, and

wherein said opening and closing devices have structure causing the the opening and closing devices to open and close every carrying-in of a substrate, one by one, to one of the two lock chambers, and every carrying out of a substrate, one by one, from one of the two lock chambers.

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